

Claims

1. Method for producing a ball-and-socket joint (1) between a slipper (3) and a piston (2) of a piston machine,
 5 having the following method steps:
 - configuring the slipper (3) with a joint ball (4) at the end opposite its bottom surface (21),
 - configuring the piston (2) with an overmeasure (x) on its lateral surface (2c) and with a hemispherical joint recess
 10 (5) with a recess edge (7) that protrudes beyond the equator (6) of the joint recess (5) at one end of the piston (2), for the joint ball (4),
 - bringing together the joint recess (5) and the joint ball (4),
 15 - beading the recess edge (7) into a form in which it grips behind the joint ball (4)
 - and finishing the lateral surface (2c) of the piston (2), characterised by the following method steps:
 20 - bringing together the joint recess (5) and the joint ball (4) (after finishing the lateral surface (2c) of the piston) (2),
 - locally heating the recess edge (7) to a temperature that reduces its hardness and
 25 - beading the recess edge (7).
2. Method for producing a ball-and-socket joint (1) between a slipper (3) and a piston (2) of a piston machine, having the following method steps:
 30 - configuring the piston (2) with a joint ball (4) at one end,
 - configuring the slipper (3) with a joint recess (5) with a recess edge (7) that protrudes beyond the equator (6) of the joint recess (5), for the joint ball (4),
 35 - bringing together the joint recess (5) and the joint ball (4)

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- and beading the recess edge (7) into a form in which it positively grips behind the joint ball (4), characterised by the following method steps:

5 - locally heating the recess edge (7) to a temperature that reduces the hardness of the material after the bringing-together and

- beading the recess edge (7) into a form in which it positively grips behind the joint ball (4).

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3. Method according to Claim 1 or 2, characterised in that the recess edge (7) is hot-beaded.

15 4. Method according to one of the preceding claims, characterised in that, before finishing the lateral surface (2c) of the piston (2), the lateral surface (2c) is nitrided or hardened, in particular gas-nitrided.

20 5. Method according to one of Claims 1 to 3, characterised in that the recess edge (7) is shaped with a conical form converging towards its free edge.

25 6. Method according to Claim 5, characterised in that the converging form is produced without an overmeasure (x).

30 7. Ball-and-socket joint (1) between a piston (2) and a slipper (3) of a piston machine, having a spherical joint recess (5) on one part of the ball-and-socket joint, in which recess a spherical joint ball (4) on another part of the ball-and-socket joint is pivotably mounted, a recess edge (7) of the joint recess (5) being beaded into a position in which it grips behind the joint ball (4), characterised in that the recess edge (7) is hot-beaded.

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8. Ball-and-socket joint according to Claim 7, characterised in that the joint recess (5) and the recess

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edge (7) are arranged on the piston (2) and the joint ball (4) is arranged on the slipper (3).

9. Ball-and-socket joint according to Claim 7,
5 characterised in that the joint recess (5) and the recess edge (7) are arranged on the slipper (3) and the joint ball (4) is arranged on the piston (2).

10. Ball-and-socket joint according to Claim 9,
10 characterised in that the slipper (3) consists of metal with a high strength or hardness, in particular steel, and in its base region has a sliding part (8a) forming its base surface (21).

11. Ball-and-socket joint according to one of Claims 7 to
15 10, characterised in that the recess edge (7) is shaped to converge, in particular conically, towards its free end.

12. Ball-and-socket joint according to one of the
20 preceding Claims 7 to 11, characterised in that the piston (2) and/or the slipper (3) is or are hardened, in particular nitride-hardened.

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